



8441 Wayzata Blvd, Ste 101 • Golden Valley, MN • 55426 • www.nelsonenergy.us

February 9, 2021

Ms. Kimberly Bose, Secretary
Federal Energy Regulatory Commission
88 First St. NE,
Washington, DC 20346

FILED ELECTRONICALLY

Re: Preliminary Permit Application for the Bigstone Pumped Storage Project

Dear Secretary Bose:

Attached, please find an application for preliminary permit for the Bigstone Pumped Storage Project located near Milbank, South Dakota. If there are any questions regarding this application, please contact me at 952-544-8133 or via email at Doug@nelsonenergy.us.

Sincerely,

A handwritten signature in blue ink, appearing to read "Douglas A. Spaulding".

Douglas A Spaulding, P. E.
President Nelson Energy
Agent for Energy Recycling Company LLC

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

**ENERGY RECYCLING COMPANY LLC)
)
)**

**APPLICATION FOR PRELIMINARY PERMIT
FOR THE
BIGSTONE PUMPED STORAGE PROJECT
GRANT COUNTY, SOUTH DAKOTA**

February 2021

**Prepared by:
Nelson Energy LLC
(Authorized Agent)**

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Energy Recycling Company LLC

*Energy Recycling Company LLC**Preliminary Permit Application
Bigstone Pumped Storage***TABLE OF CONTENTS**

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Energy Recycling Company LLC

Preliminary Permit Application
Bigstone Pumped Storage Project

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

ENERGY RECYCLING COMPANY LLC)
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APPLICATION FOR PRELIMINARY PERMIT

BISTONE PUMPED STORAGE PROJECT

GRANT COUNTY, SOUTH DAKOTA

FEBRUARY 2021

INITIAL STATEMENT

1. Statement of Application

Energy Recycling Company (the Applicant), a Minnesota Limited Liability Company authorized to do business in Minnesota, hereby applies to the Federal Energy Regulatory Commission ("FERC" or "the Commission") for a preliminary permit for the proposed Bigstone Pumped Storage Project ("Project"), as described in the attached exhibits. This application is made so that the Applicant may secure and maintain priority of application for a license for the Project under Part I of the Federal Power Act while obtaining the data and performing the acts required to determine the feasibility of the Project and to support an application for a license.

2. Location

The location of the proposed project is:

State: South Dakota

County: Grant County,

Portions of:

T120 N, R147W, Sections 7,8,17 and 18

City/Town: Milbank

Water body: North Fork of the Yellow Bank River

Energy Recycling Company LLC

Preliminary Permit Application
Bigstone Pumped Storage Project

3. Applicant/Agent

The exact name, business address, and telephone number of the applicant is:

Energy Recycling Co.
c/o Nelson Energy
8441 Wayzata Blvd., Suite 101
Golden Valley, MN 55426

The exact name, business address, and telephone number of each person authorized to act as an agent for the Applicant in this application:

Mr. Douglas Spaulding, P.E.
Nelson Energy
8441 Wayzata Blvd, Suite 101
Golden Valley, MN 55426
952-544-8133

Ms. Elizabeth Whittle
Nixon Peabody LLP
Market Square North
401 9th Street N.W.
Suite 900
Washington D.C. 20004
202- 585-8338

4. Business Structure

Energy Recycling Company LLC is a Limited Liability Company organized and existing pursuant to the laws of the State of Minnesota, and as such the Applicant is qualified under Section 4(e) of the Federal Power Act (FPA) to apply for and hold hydroelectric licenses issued under Part I of the FPA. The Applicant is not claiming preference under Section 7(a) of the FPA.

Term

The proposed term of the requested permit is 48 months.

5. Existing Dams or Other Project Facilities

There is no existing dam associated with the Project.

6. The proposed project is located in the following political jurisdictions.


Energy Recycling Company LLC

Preliminary Permit Application
Bigstone Pumped Storage Project

- Congressional District: South Dakota-Rep. Dusty Johnson
- Senators: Mike Rounds, John Thune
- There are no known irrigation districts, drainage districts, or similar special purpose political subdivisions in the area of the project that would be interested in or affected by this application.


Douglas A. Spaulding, being duly sworn, deposes and says that he has read the foregoing Application for Preliminary Permit by Energy Recycling Company and that the content of this Application is true to the best of his knowledge.

8th this day of February 2021


Douglas A. Spaulding P.E.,
President, Nelson Energy
Agent for Energy Recycling Company

State of Minnesota
County of Hennepin

Subscribed and sworn to before me this 8th day of February 2021

By: 
Notary Public
State of Minnesota
My commission expires 1/31/25

Recorded in Hennepin County

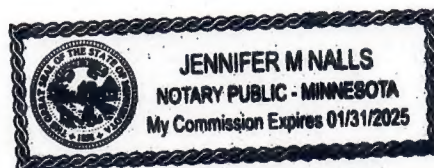


EXHIBIT 1 – DESCRIPTION OF THE PROPOSED PROJECT*18 CFR §4.81(b)***1. General Project Configuration**

The Project site (the Site) is a closed loop pumped storage project located approximately six miles east of the City of Milbank in Grant County, South Dakota (see Exhibit 3, Figure 3-1). The Site is located on agricultural land adjacent to an existing quarry operation and consists of a proposed upper enclosed reservoir constructed of a concrete lined rockfill embankment and a lower reservoir excavated in the granitic bedrock at a depth of approximately 2,500 feet below the ground surface. The project will require water from the North Fork of the Yellow Bank River located within the proposed project boundary. Alternatively, initial fill and make up water may be obtained from groundwater sources located nearer the project. It is currently anticipated that the initial filling will be accomplished by a pumping system as described below.

The purpose of the project is to allow more efficient utilization of existing base load and renewable energy resources. It should be noted that in the Midwest more wind power is generated during nighttime hours than during the on peak periods of the day. The project will provide these renewable resources with the ability to provide on peak power and will also increase the reliability of the existing transmission system by providing capability for voltage support, load following and black start capability. The Project concept is based on traditional pumped storage technologies of “storing” electric energy in the form of hydraulic potential, by pumping water to the upper reservoir during off-peak times and allowing it to flow back through hydroelectric turbines when electric demand is high. The Project seeks to derive the benefits of traditional pumped storage, essentially increasing off-peak load and increasing generating capacity during peak demand periods, in an improved manner that reduces and avoids many of the environmental impacts of the traditional open system pumped storage facility design. In addition to providing on peak power, the project will be capable of providing ancillary services such as load following, ready reserve power and voltage support. Consideration will be given to the use of variable speed generators which can serve to enhance the stability of the existing transmission system thereby increasing the capability of the existing system.

Off peak power for pumping may be obtained from a variety of existing and proposed renewable resources. The primary source that will be considered is off peak wind and solar generation in the State of South Dakota. The project therefore will serve to firm these large renewable energy sources.

The Applicant proposes to do this with an innovative but proven approach which employs a totally contained upper reservoir separated from natural surface water and utilizes a powerhouse and lower reservoir constructed deep underground in the hard rock formation underlying the project. With this design approach, the open surface upper reservoir is not interconnected with natural bodies of water. The open reservoirs interconnected to natural river or lake systems used in traditional pumped storage facilities are eliminated and replaced with a closed system upper reservoir and substantially invisible underground facilities. This will serve to limit environmental

impacts associated with fish or other aquatic species and eliminate the need to discharge into public waters.

The project as currently envisioned, consists of two 333 MW hydroelectric pump/turbines with a combined capacity of 666 MW. As a pumped storage project, the facility is configured to generate 666 MW in cycling or peaking mode with an energy storage of twelve hours. Adjustable speed reversible pump/turbines will allow to water from the underground storage reservoir to be pumped back up to the upper reservoir, using the abundant and inexpensive off-peak power. During initial feasibility studies, consideration will be given to optimizing the generation and storage capacity. Final project storage and generating capacity will be based upon an evaluation of the needs of the overall electrical system in the area for storage and ancillary services. The project will be capable of providing ancillary services to increase the reliability of the generation and transmission system such as spinning reserve, load following and voltage support on a 24 hour per day basis.

2. Underground Excavation

The underground excavation for the project will utilize the prize-winning procedures developed for the 2019 DOE FAST (*Furthering Advancements to Shorten the Time life and*) competition. A Pre-Cambrian age granite formation underlying the project site extends very close to the ground surface and a quarrying operation adjacent to the site provides monument stone and gravel. The high strength granite formation is ideal for excavating large-span caverns required for the powerhouse and associated chambers to house valves and transformers. This massive granite geology also presents an opportunity for high-speed tunneling to construct the tunnels and chambers, with the resulting completed tunnels requiring minimal support, other than pressure shafts and draft tubes, which would be lined with concrete, and the penstocks which would be steel-lined.

The development concept using modern advanced Tunnel Boring Machine (TBM) excavation techniques is a novel approach for construction of a deep-level powerhouse and lower-level reservoir. The basic concept is to use a pair of TBM machines which can tunnel from the surface to around 2,500 ft. below the ground surface. This would be done by advancing the TBMs down a decline access ramp as shown in Figures 3-2 and Figure 3-3 at an easy gradient of around 12.5%. The access ramp allows the TBMs to descend to the level of the powerhouse and lower reservoir and then also allows access to the excavation for conventional trucks. This gradient makes travelling down the ramps less of a risk for the road vehicles transporting heavy equipment, construction materials and personnel. Similarly, spoil trucks carrying excavated material can negotiate the upward ramp, without too much difficulty, however, conveyors would also be used for spoil removal from the excavations.

The TBMs would tunnel downhill until the powerhouse level was reached. One TBM would then drive through the upper part of the powerhouse (top heading, Figure 3-4), and the second machine would drive through the transformer chamber. Once through the chambers, both machines would continue tunneling but change to an upgrade from this low point until the level of the lower reservoir was reached.

As shown in Figure 3-3, the two TBMs would then continue to excavate tunnels in a pair of parallel spirals to develop the lower reservoir. Cross cut tunnels would be excavated by drill and blast methods to connect the spirals together at regular points to allow easy access for spoil removal in the short term to avoid the need to travel the whole spiral length. In the long term these cross-cut "spokes" would also be used to improve the hydraulic efficiency for flow in and out of the chambers during operation. A raise bored shaft would be drilled from the high point of the lower -level reservoir to the surface to provide ventilation during the pumping and generating cycles.

As the TBMs pass through the powerhouse and transformer gallery, secondary excavation teams would then move into these chambers to develop the large excavations using the same spoil-handling arrangement as employed for the TBMs. The ramps would then be used for access for trucks and construction materials and spoil. As shown in Figure 3-2, the twin ramps would provide an efficient logistics route to avoid bottlenecks during construction. The rock spoil would be used to construct a lined upper reservoir. Excess rock could be crushed and sold as railroad ballast or concrete aggregate.

It will be necessary to construct short bypass tunnels around the powerhouse and transformer gallery, so that once the main chambers are excavated the ongoing excavation works in the lower reservoir does not hinder the installation of the turbines and other mechanical and electrical equipment required to complete the facility. A further drilled shaft may be excavated from the surface to the powerhouse, to act as a cable route, or emergency egress/ventilation shaft. These details would be studied at in more detail during the next phase of project development. A 3D view of the powerhouse and transformer gallery is shown in Figure 3-5.

Once the main works are completed, concrete plugs would be constructed to seal off the wet areas from the powerhouse. The layouts shown in this proposal are preliminary at this stage and will be subject to further refinement and development should the concept be deemed suitable for further feasibility studies.

A further advantage of this methodology is that the ramps and access points could potentially be easily used to construct an extension to the facility or used as a ready-made underground access point for a duplication of the station at some time in the future should economics and demand warrant such a plan. The presence of the twin ramps reduces the cost significantly and would also shorten the construction time for such an extension to the facilities. One ramp could be used as a dirty side access for spoil removal and construction with the other being kept for a dedicated access to the exiting station.

3. Reservoirs

Lower Reservoir As shown in Figure 3-2 and 3-3, the lower reservoir would be constructed by two 42.5 ft. diameter TBM's excavating tunnels in a circular pattern at depth of 2,500 feet below the ground surface. A typical cross-section of the lower reservoir tunnels is shown in Figure 3-2. The tunnels comprising the underground reservoir have the same cross section as the access ramp. The tunnels would be unlined in the high strength granite bedrock which forms the foundation material at the proposed site. The lower reservoir would consist of eight concentric

circular tunnels at a depth of 2,500 ft. The diameter of the tunnels circular configuration would vary from approximately 5,400 feet to 4,200 feet. The total length of the reservoir tunnels would be 115,000 feet. The top of the tunnels forming the lower reservoir would be at Elevation -1410 msl and the bottom of the tunnels would be at elevation -1452.5 msl. The maximum normal water surface would therefore be El. -1410.0. The active storage of the lower reservoir would be approximately 3500 acre-ft. When the reservoir tunnels are completely full the water would be at the top of the tunnels and the surface area would zero acres.

Upper Reservoir The upper reservoir would be constructed as a circular closed impoundment. The specific depths and size of the reservoir will be determined during the project feasibility studies. As shown in Figure 3-7, the design concept includes use of the rock excavated from the underground reservoir to construct a rockfill embankment. The outer rockfill embankment section will support a concrete liner system placed on the slopes of the rockfill embankment. A geomembrane liner and drain system will be placed on the bottom of the reservoir. The system will include a drainage layer that connects to a drainage gallery located at the toe of the embankment. To provide the storage necessary for twelve hours of on-peak generation, the reservoir will need to be capable of storing approximately 3,500 acre-feet of water. Assuming a depth of 50 feet for the pond depth with five feet of freeboard the circular embankment will have height of 55 feet and a footprint of approximately 120 acres. The maximum pond elevation is currently estimated to be 1145.0 ft. MSL and a minimum elevation of 1095.0 MSL, although the elevations could vary with the final reservoir configuration. During the feasibility studies for the project the exact size, depth and configuration will be developed to optimize the requirements. As described below, the upper reservoir will include an intake system required to provide flow to the underground powerhouse and lower reservoir area.

4. Intake

The intake will be situated in the upper reservoir and will be a reinforced concrete “morning glory” type of circular configuration with a maximum outside diameter of approximately 100-feet and an inside diameter of 18-feet. A cross section providing details of the intake structure configuration is shown on Figure 3-8.

5. Penstock

The upper reservoir will be connected to the powerhouse by a vertical shaft excavated in the granitic bedrock and lined with steel. The estimated length of the penstock is approximately 2800 feet and the inside diameter is 16 feet. The penstock will terminate upstream of the powerhouse in a bifurcation to connect to the two reversible pump turbines. To provide sufficient “setting” for the pump/ turbines, the powerhouse will be located 300 ft. below the lower reservoir at a depth of approximately 2,800 ft. below ground surface.

6. Powerhouse

The underground powerhouse gallery is shown on Figures 3-4 and 3-5 and will be excavated in the granitic bedrock and will house two reversible pump-turbines. The current estimated

dimensions of the powerhouse are approximately 200 feet long x 70 feet wide x 130 feet high. There will be a separate underground transformer gallery which is currently estimated to be 50 feet wide by 240 feet long by 40 feet high. The walls and ceilings of both structures may be lined with concrete.

7. Transmission Lines

The project location is situated near to an existing 345 kV transmission line which is located approximately 1 ½ miles east of the proposed upper reservoir. The project will be interconnected into the transmission system by construction of a new substation adjacent to the project. Power for pumping will be obtained via this transmission system as well transmission of on-peak power generation. The interconnection voltage is presently estimated to be 345 kV. Since the proposed pumped storage project is located approximately 1.5 miles west of an existing transmission line, the length of the interconnection is therefore estimated to be approximately 1 ½ miles feet depending on the location of the underground transformer gallery and the new substation. The dimensions of the new substation cannot be accurately determined at this early stage of project development. However, based on other projects the station dimensions will be 200- feet by 200 feet or less.

8. Pumping Facilities

As indicated previously, water for initial filling for the closed system reservoirs will be obtained from the North Fork of the Yellow Bank River located within the project boundary. A pumping plant will be installed to both provide initial filling water and makeup water requirements. Make up water to account for evaporation losses could also be obtained from the North Fork of the Yellow Bank River. During feasibility studies alternative sources of water will be evaluated. These will include potential groundwater sources within the general project area.

9. Estimate of Annual Energy Production

The powerhouse will be equipped with two reversible pump-turbines isolated from the downstream reservoir by butterfly valves with a combined installed capacity of 666 MW (MW). The estimated average annual energy production is 1450 GWh. Descriptive details of the powerhouse and generating units are provided in the table below.

POWERHOUSE	
Number of Units	2
Unit Spacing	75 feet
Maximum Intake Capacity	4000 cfs
Maximum Pumping Capacity	3528 cfs
GENERATING UNITS	
Turbine (shaft) Power per Unit – Nominal	333 MW
Nominal net head	2,500 feet
Pump Power Input per Unit – Nominal	333 MW
Installed Power	666 MW
Generating Time	12 hours
Pump-turbine Type	Reversible Francis
Rated discharge (per unit)	1764 cfs

10. Project Boundary

The project boundary depicted on Figure 3-1 encloses a relatively large amount of land compared to the footprint of the reservoirs and other project structures. There are several reasons for this location of the boundary. These include the fact that the subsurface conditions will dictate the most efficient location of the reservoirs. Information available from water wells drilled in the area and other geologic studies indicate that the depth of the underlying bedrock may be quite variable. Shaft construction in areas where the bedrock is deep will require costly freezing techniques to allow construction of access shafts through the soil units above the granitic rock. Locating shafts in areas with minimal depths of overburden will therefore be desirable. A second concern related to the amount of land within the project boundary is the fact that the excavation of the lower reservoir will result in a large amount of rock in excess of the quantities needed to construct the upper reservoir. It is anticipated that this excess rock will be stored on site and ultimately will be processed and sold as aggregate, railroad ballast or riprap. The final project boundary depicted in a license application will be based upon the needs for the project foundations and the need for aggregate storage and processing.

11. Lands of the United States

There are no lands of the United States included within the proposed Project boundary.

12. Wilderness Areas/Wild and Scenic Areas

There are no known rivers in the vicinity of the proposed Project boundary that are included in or have been designated for study for inclusion in the National Wild and Scenic Rivers System.

13. Public Interest

The proposed project will fulfill the public interest in the following manner:

- Provide a means to use existing and future intermittent wind and solar generation to provide firm on peak power;
- Provide reliable source of green, renewable power;
- Produce carbon-free renewable power;
- Add much needed peaking capacity;
- Offer sustainable development for the 666 MW project with:
 - \$1.5 billion new direct investment into a local and regional economy;
 - 600 to 1,000 jobs during 7-year construction period, and
 - 20 to 40 full time direct and indirect jobs during operation
- Improve black start capability of the regional power grid;
- Increase transmission system performance and reliability;
- Improves thermal plant efficiency by reduced operation in inefficient rapid response mode;
- Offers highest operating efficiency of all known generation systems;
- Reduces thermal generation reserve requirements;
- Reduces volatility of electricity prices, adding balance to existing load disparities in local market area.
- Has anticipated life of 80 years or more.

EXHIBIT 2 – DESCRIPTION OF PROPOSED STUDIES*18 CFR § 4.81(c)***1. Description of Studies**

The Applicant has performed preliminary review of the concept of underground pumped storage as part of a pre-feasibility study for a similar site in southern Minnesota. The initial phase of the project development will be focused on evaluating the size of the generation and storage required to meet the needs of the local utility system. Additional studies will include evaluation of the local land use, geology, transmission access and other project related features. The initial study will incorporate an evaluation of the use of tunnel boring machines to excavate the underground workings and will evaluate the use of groundwater for initial filling and makeup water. Based upon these factors the project will be carried forward in the FERC licensing process.

After conducting a prefeasibility evaluation, the Applicant proposes to conduct a detailed feasibility study of the technical features of the selected project site. The feasibility study will be designed to evaluate various project concepts, layouts, and equipment arrangements to optimize the project configuration, while considering potential environmental impacts. The study will be in sufficient depth and breadth to provide information needed for preparation of an application for license of the pumped storage project, as well as construct the project. The feasibility study will include:

- Topographic land surveys;
- Identification of a water source for initial reservoir filling and makeup water.
- Geologic investigations;
- Ecological resources investigations, including but not limited to fisheries surveys, endangered & threatened species investigations and wetland surveys;
- Cultural resources surveys;
- Engineering studies to optimize project configuration, while avoiding and minimizing potential project impacts;
- Power marketing assessments and preliminary power sales analyses
- Transmission interconnection planning
- Cost estimating, economic feasibility, and financial planning investigations

Based on the results and findings of the initial stages of the feasibility study, the Applicant will prepare a Notice of Intent and Pre-Application Document as detailed in 18 CFR Sections 5.5 and 5.6.

2. Need for New Roads

There are no new access roads needed to complete the studies. All areas within the proposed Project boundary are accessible from existing roadways or from tracked drilling equipment as needed for subsurface exploration.

3. Proposed Overall Schedule

STUDIES/TASKS	TIME FRAME
Engineering Feasibility Studies	July 2021 – September 2022
PAD Preparation	September 2022- – November 2023
Study Plan Preparation & Scoping	January 2023 – April 2023
Environmental/Cultural Resources Field Studies	June 2023-- December 2022
Prepare and File Draft License Application	December 2023 – January 2024
Prepare and File Final License Application	April 2024 – June 2025

4. Study Costs and Financing

The estimated costs of the prefeasibility and feasibility studies and preliminary design will be \$2.5 million which will be obtained from private sources.

5. Waiver

18 CFR Section 4.81 (c)(3) permits FERC to waive certain requirements for studies for new dam construction. The project will not create a dam on any waterway. Since the Project does not involve dam construction and the Applicant seeks no waivers under this section.

EXHIBIT 3- PROJECT MAPS

Attached as part of this application are the following figures:

Exhibit 3, Figure 3-1: Proposed Project Boundary

Figure 3-2 Arrangement of Main Access Ramps for Powerhouse Complex

Figure 3-3 3-D View of Project

Figure 3-4 3-D View of Powerhouse

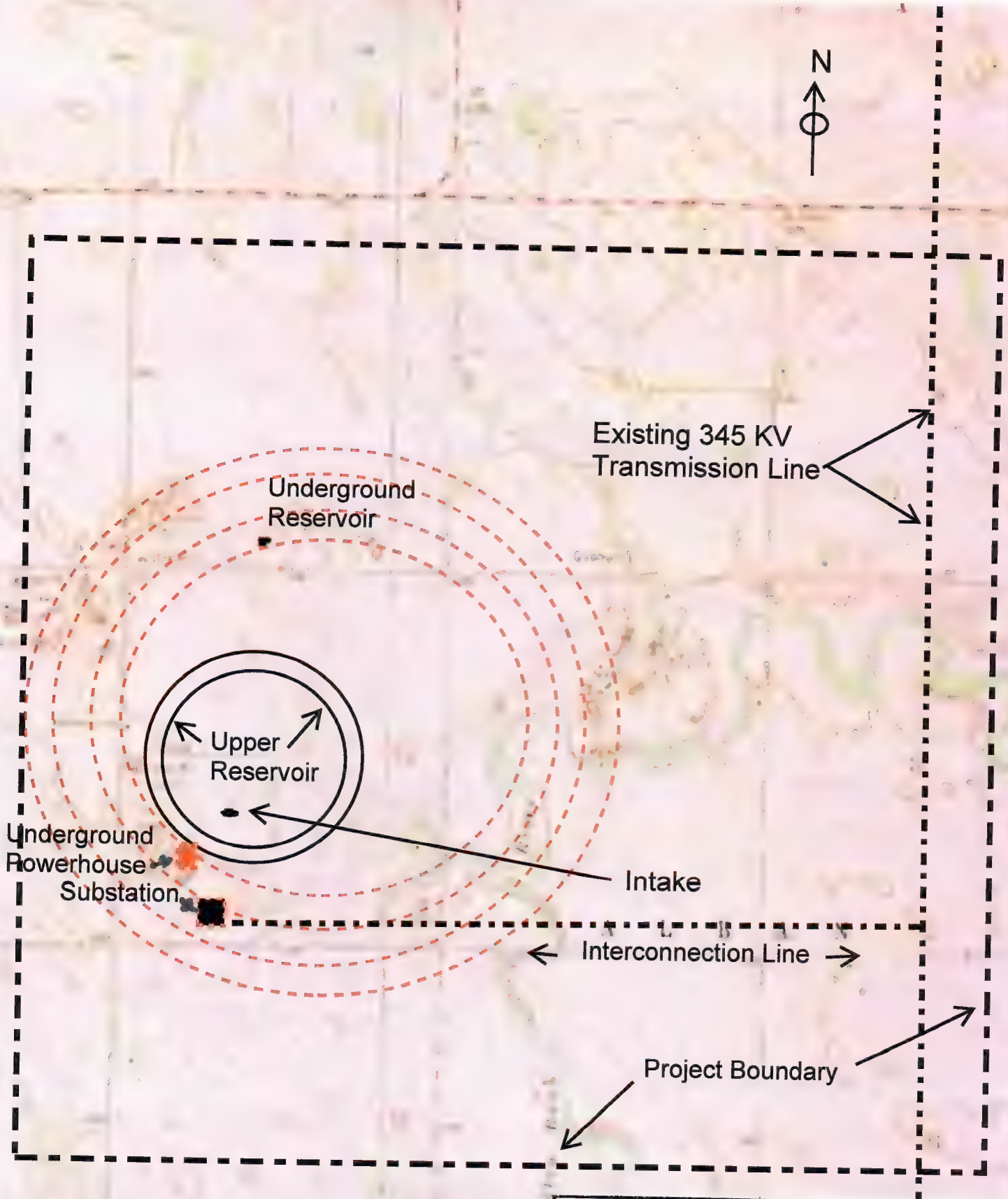
Figure 3-5 Powerhouse Complex Sections

Figure 3-6 Arrangement of Powerhouse Complex

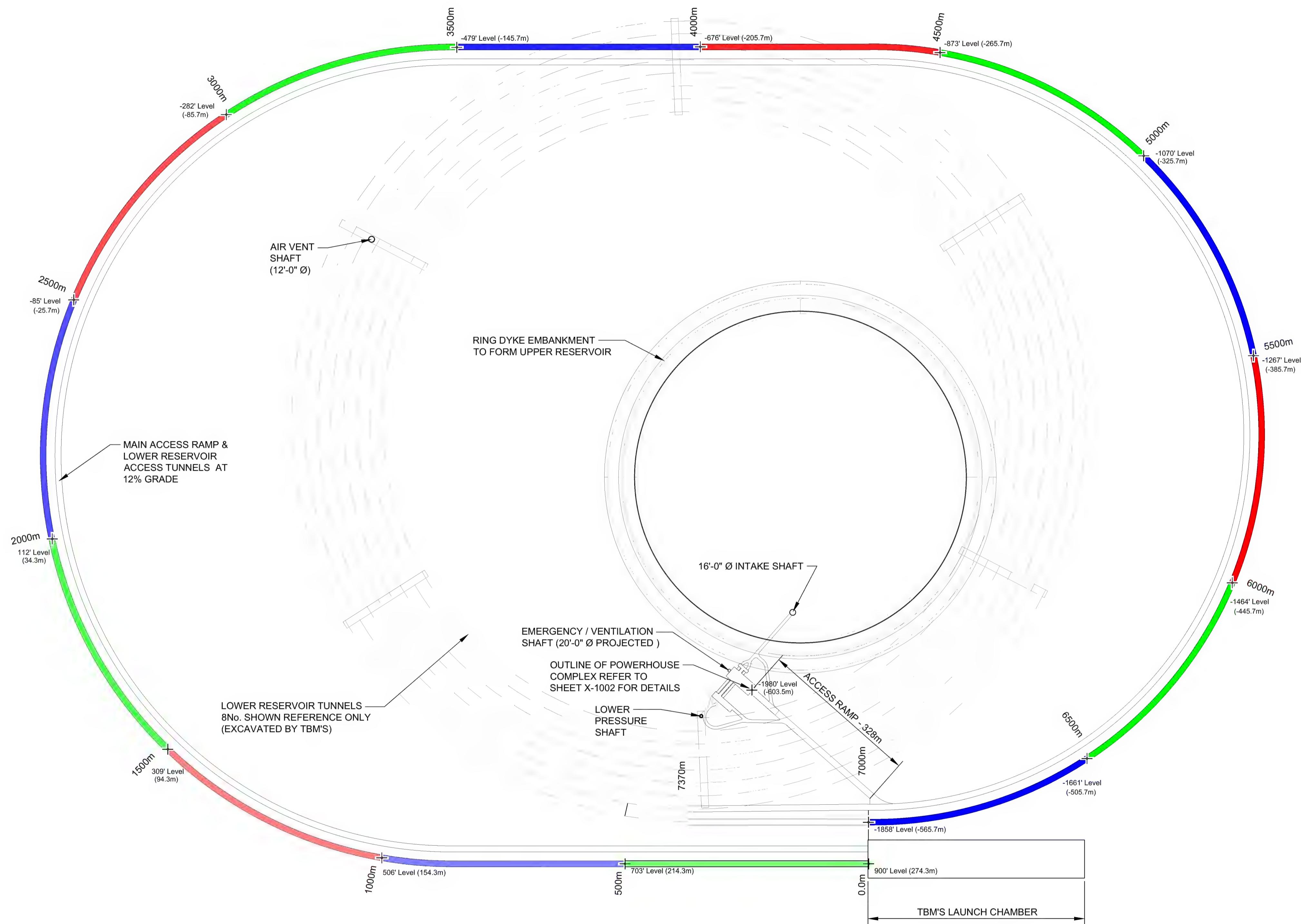
Figure 3-7 Upper Reservoir Section and Details

Figure 3-8 Intake Structure

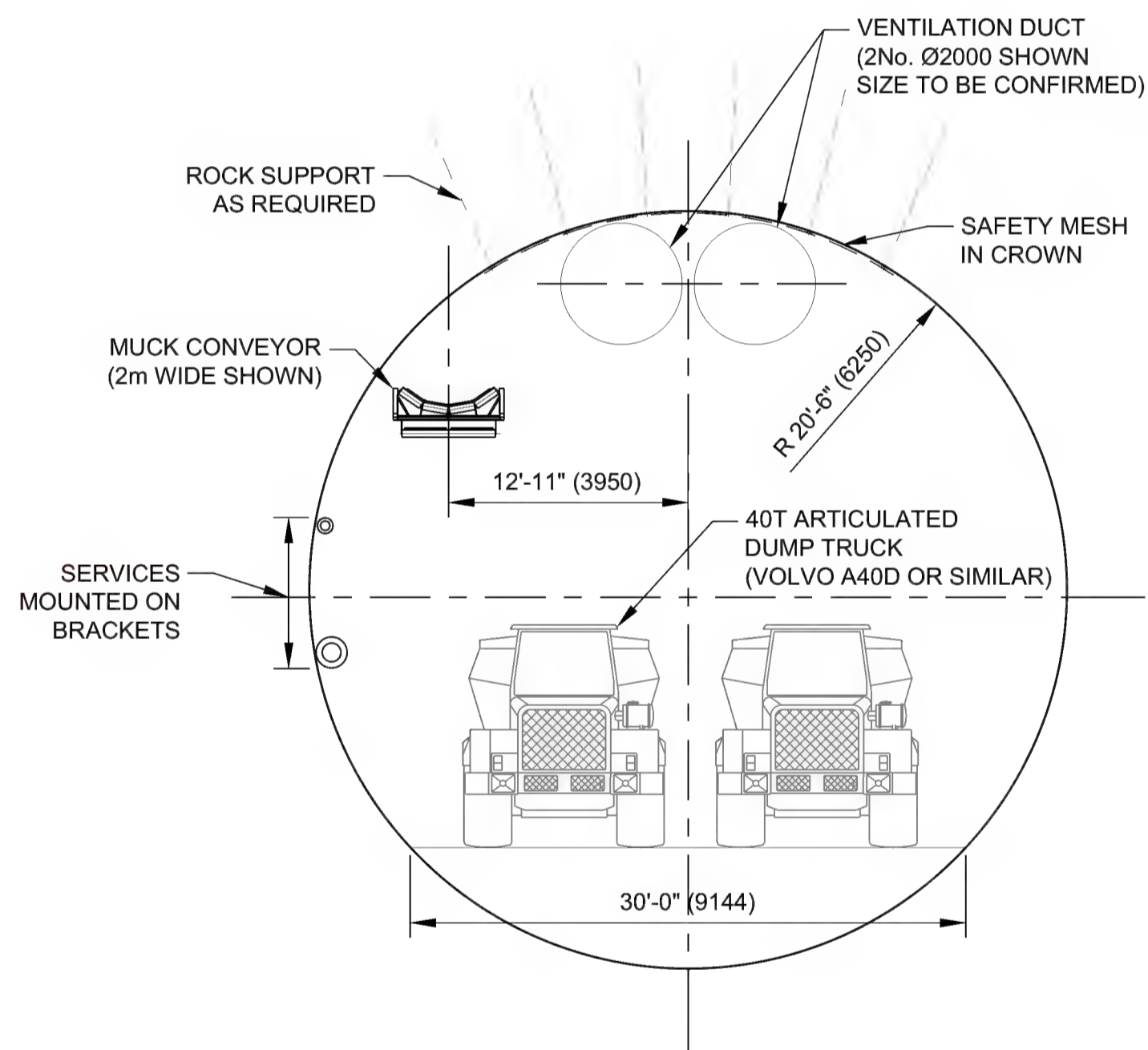
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**Figure 3-1****ENERGY RECYCLING COMPANY****BIGSTONE****PUMPED STORAGE PROJECT
LOCATION MAP & PROJECT BOUNDARY**

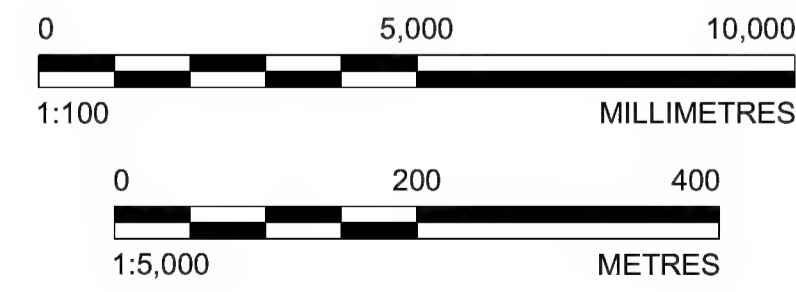
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PLAN ON MAIN ACCESS TO POWERHOUSE
COMPLEX AND LOWER RESERVOIR TUNNELS
SCALE 1:5000



TYPICAL SECTION MAIN ACCESS AND LOWER
RESERVOIR TUNNELS
SCALE 1:100



ARRANGEMENT OF MAIN ACCESS RAMPS
FOR POWERHOUSE COMPLEX

Figure 3-2



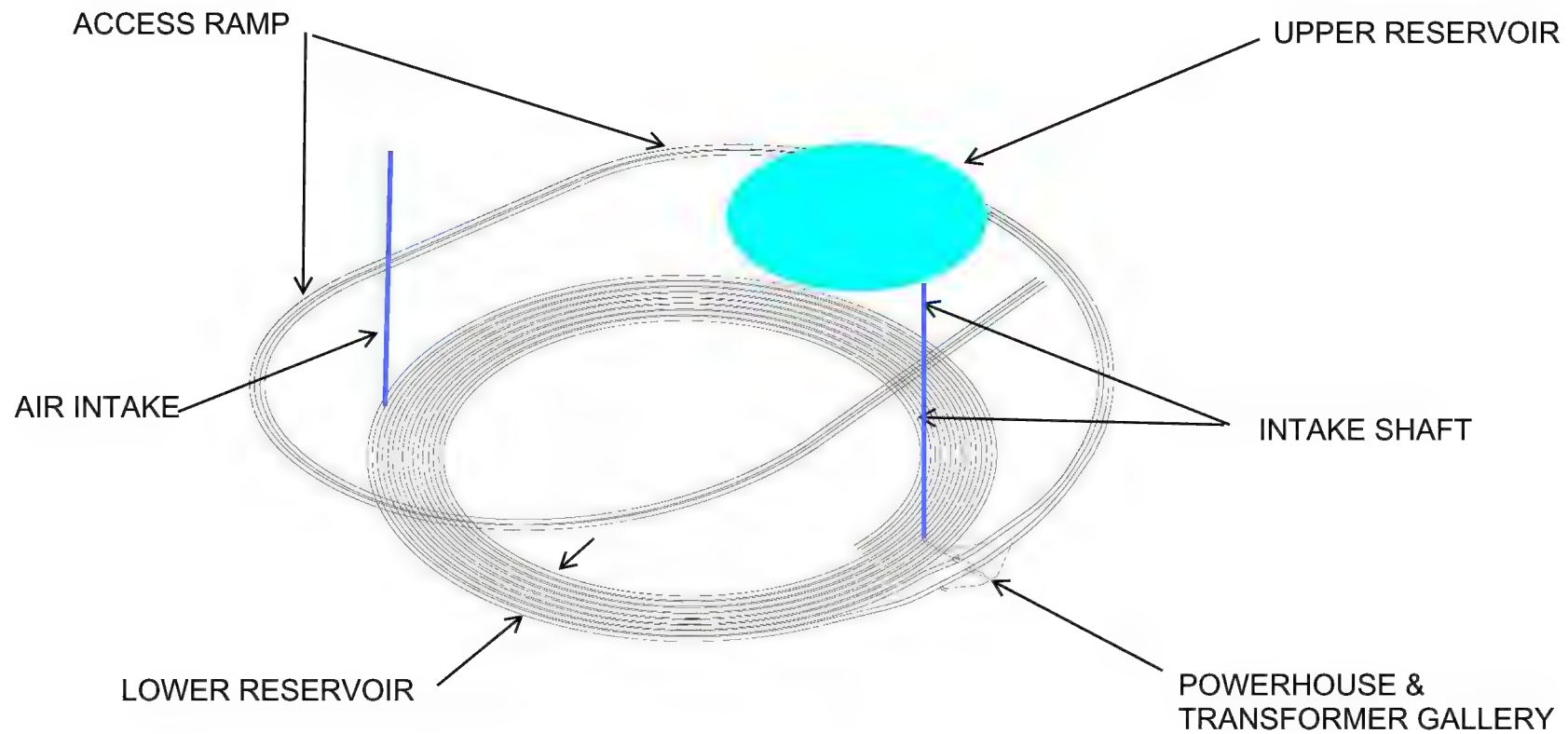


Figure 3-3
3-D View of Project

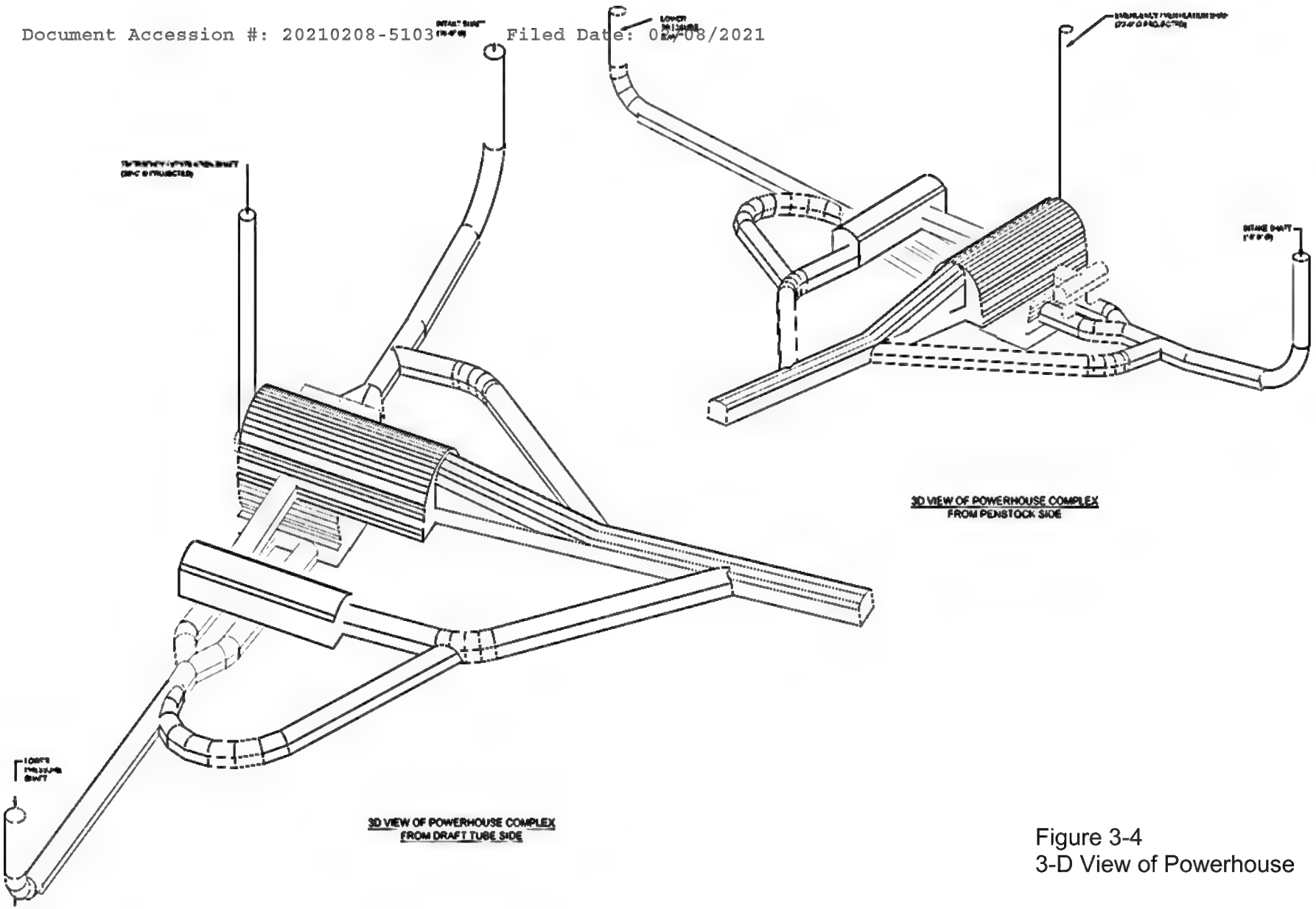
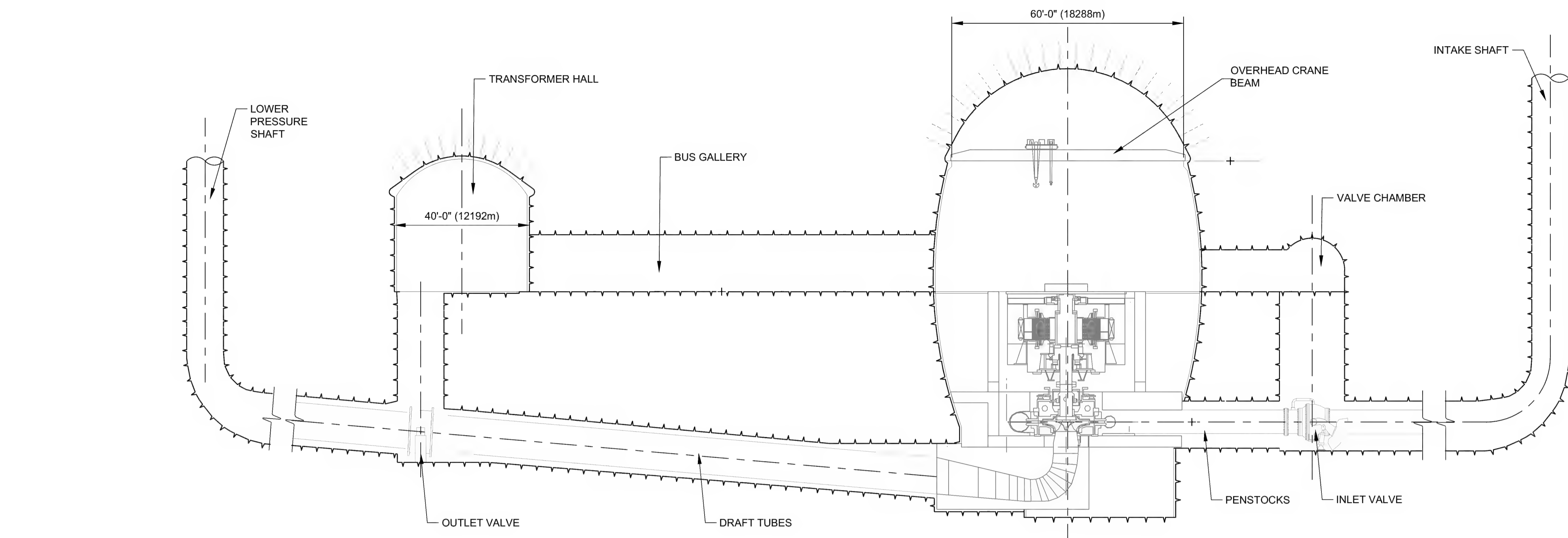
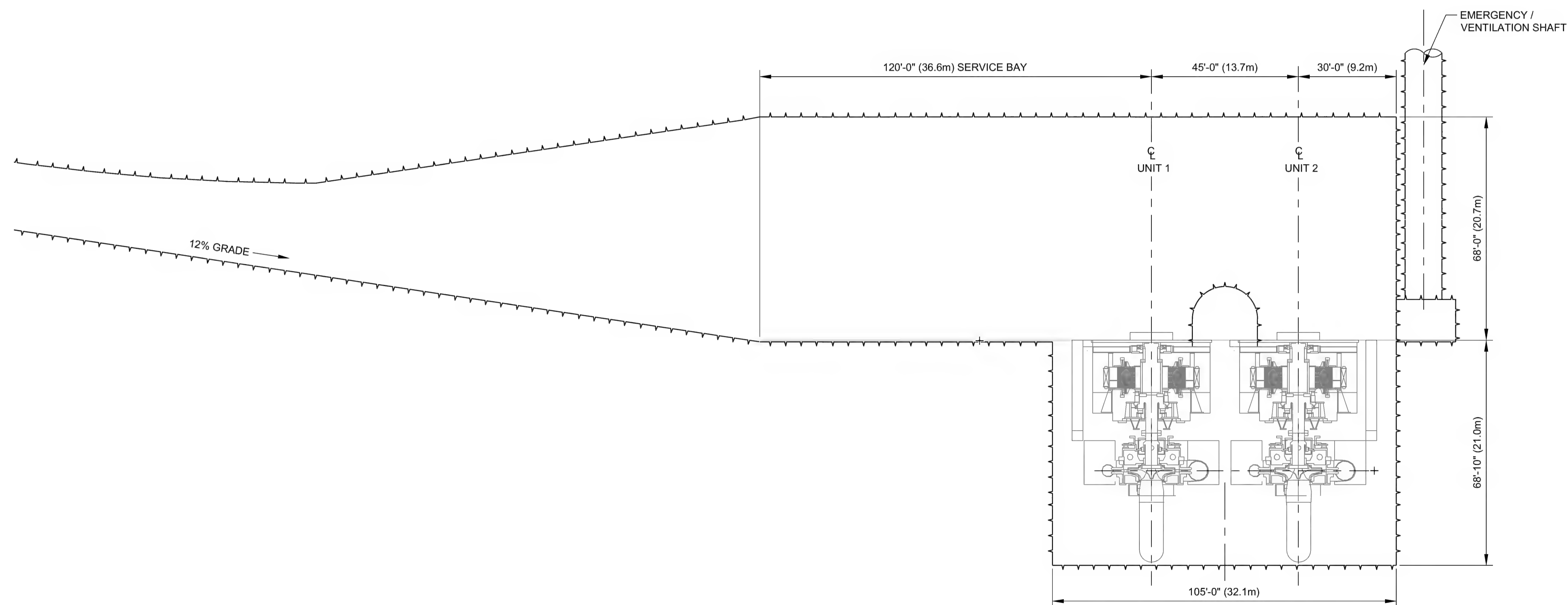


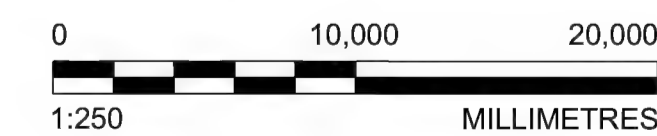
Figure 3-4
3-D View of Powerhouse



SCALE 1:250 **A-A** POWERHOUSE CROSS SECTION
1002

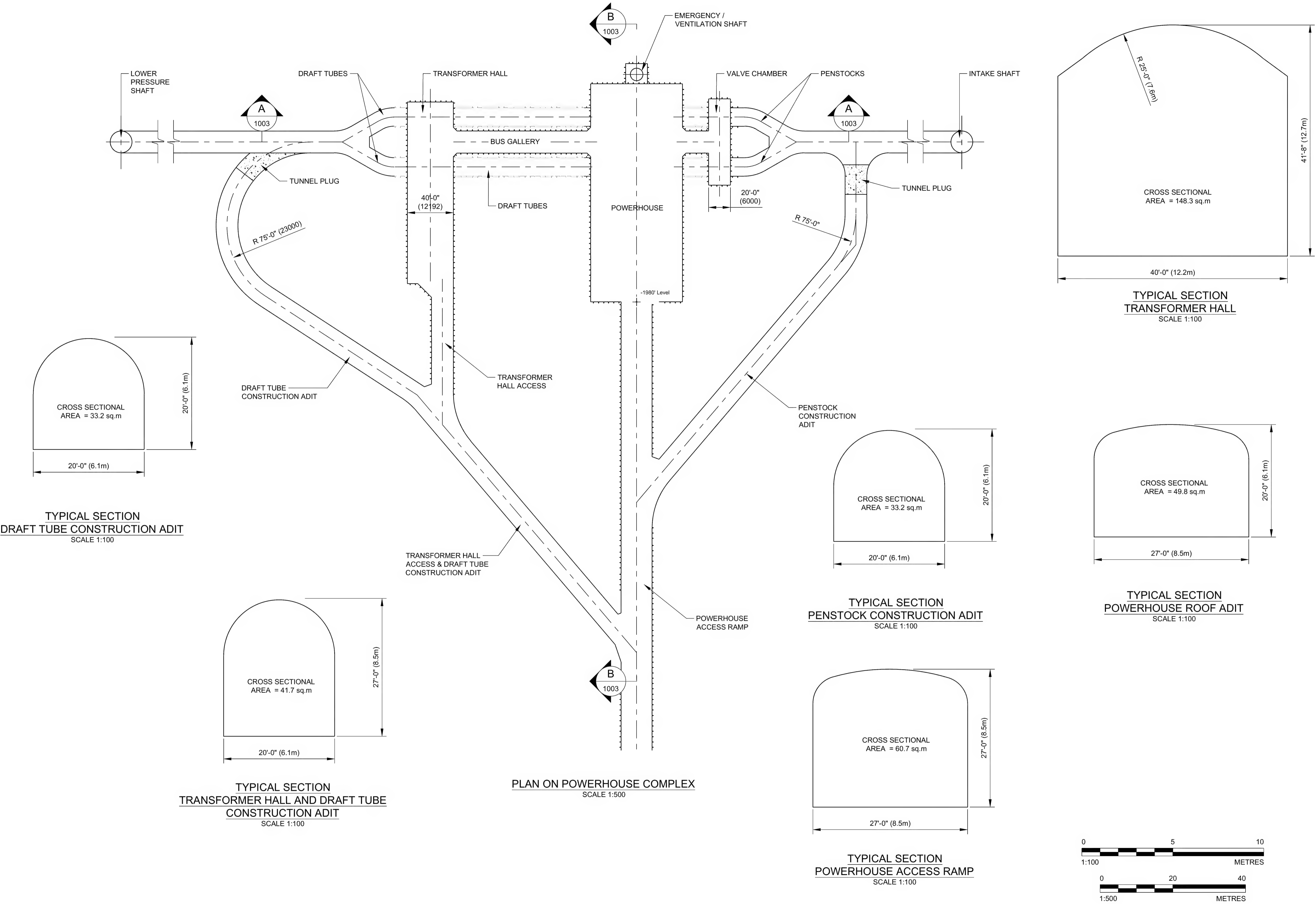


SCALE 1:250 **B-B** POWERHOUSE LONGITUDINAL SECTION
1002



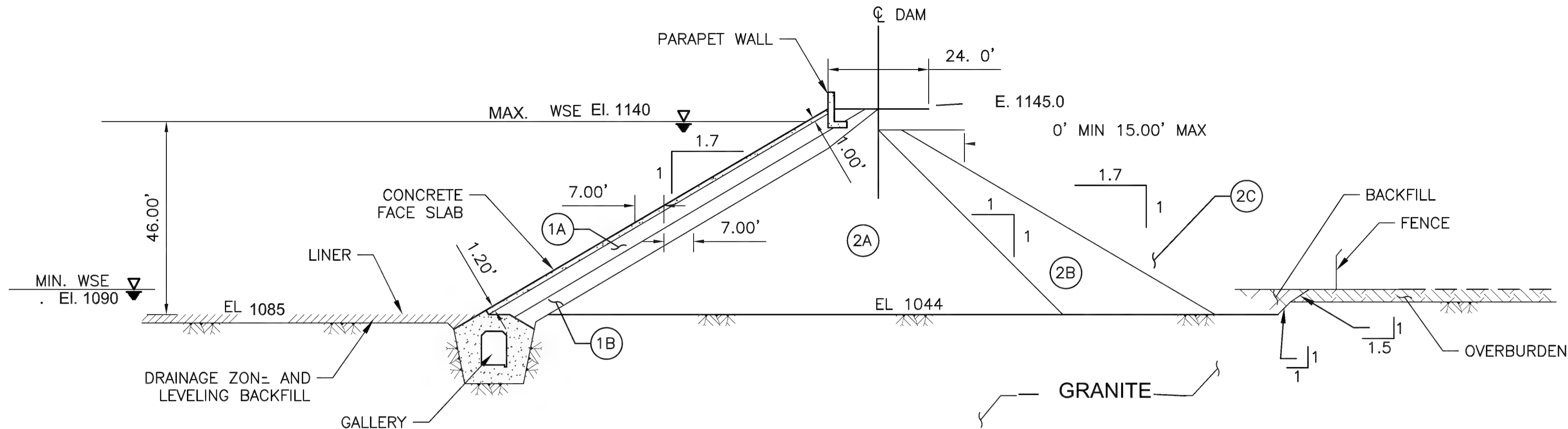
POWERHOUSE COMPLEX SECTIONS

Figure 3-5



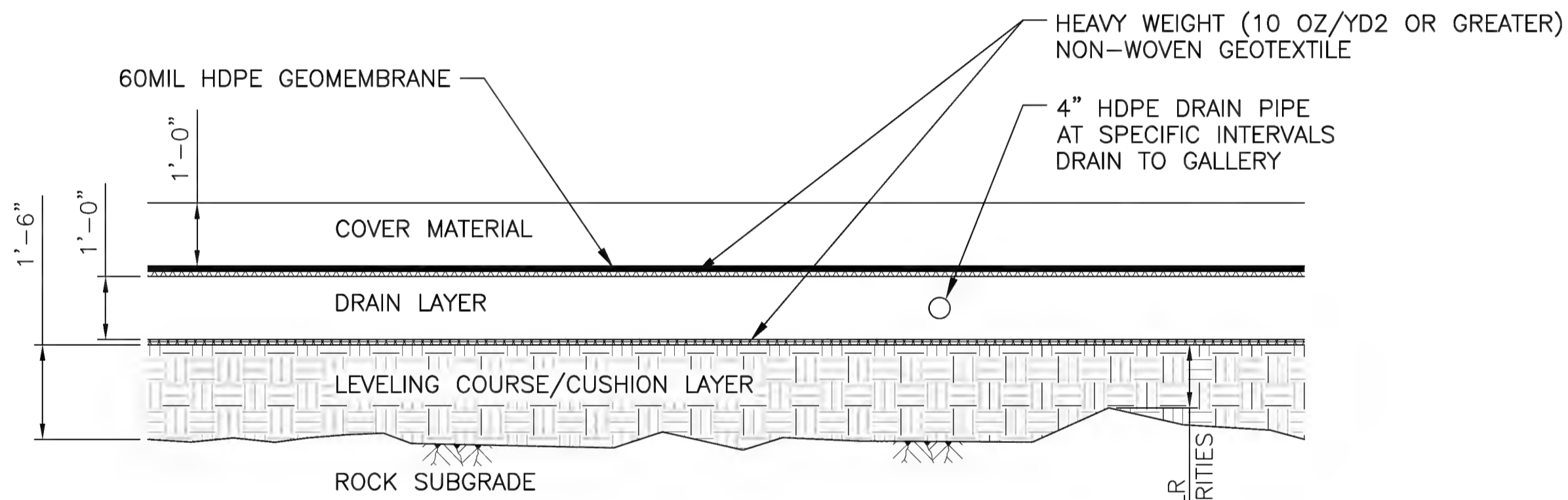
ARRANGEMENT OF POWERHOUSE COMPLEX

Figure 3-6



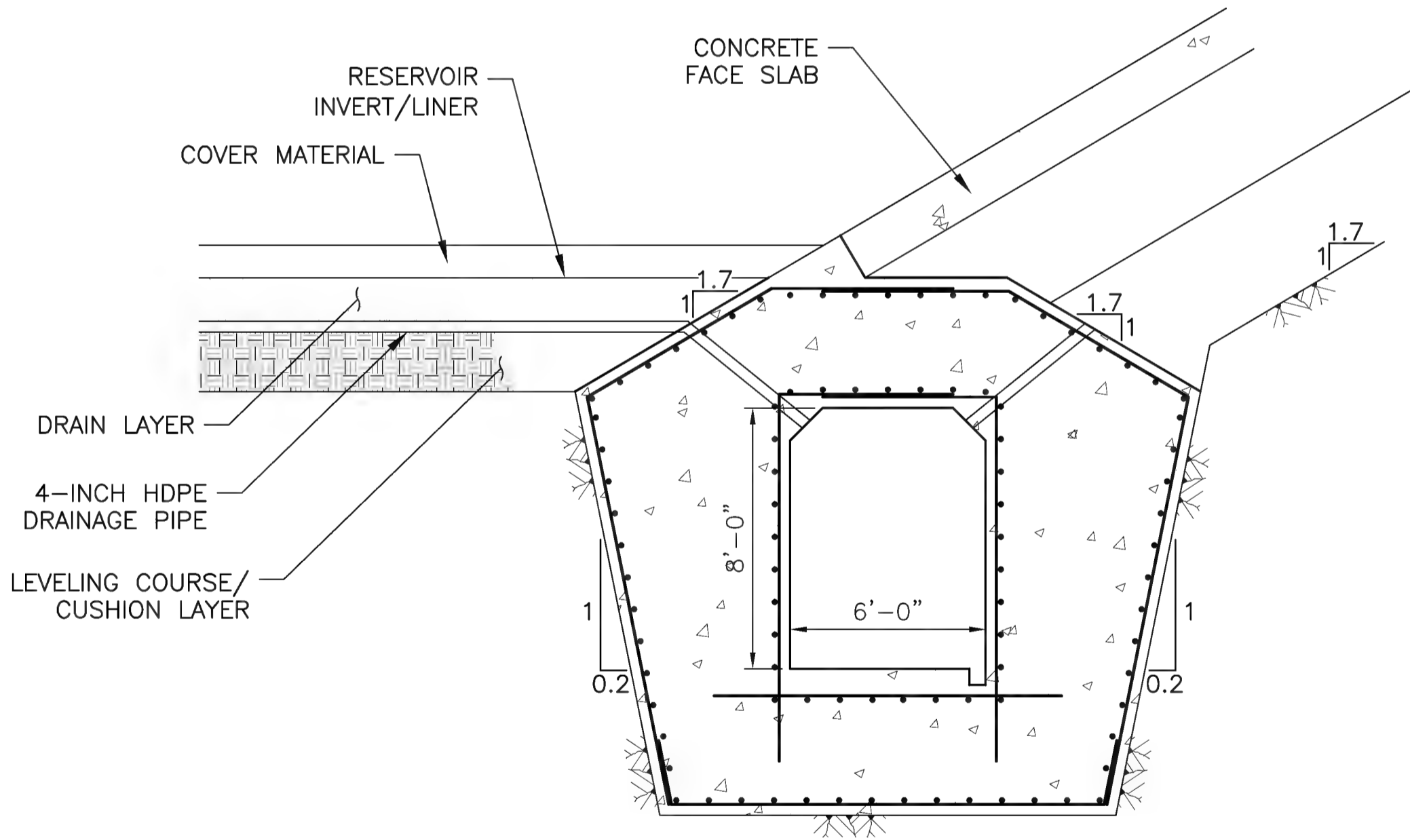
ZONE	TYPE	MAX ROCK SIZE
(1A)	TRANSITION ZONE	3"
(1B)	TRANSITION ZONE	6"
(2A)	ROCKFILL	30"
(2B)	ROCKFILL	42"
(2C)	ROCKFILL	60"

ROCKFILL TYPICAL SECTION
SCALE: 1" = 20'

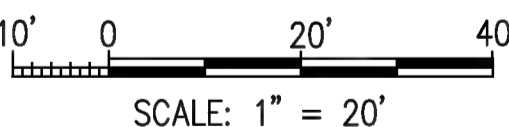
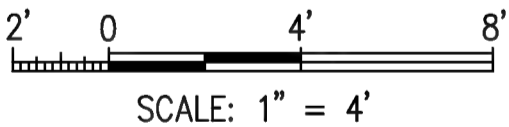


GEOMEMBRANE LINER SYSTEM - RESERVOIR BOTTOM
SCALE: 1" = 2'

- GEOMEMBRANE LINER SYSTEM NOTES:
1. NON-WOVEN GEOTEXTILE TO PROVIDE SEPARATION BETWEEN LEVELING COURSE AND OVERLYING DRAIN LAYER. UPPER NON-WOVEN GEOTEXTILE TO PROVIDE CUSHION TO OVERLYING HDPE GEOMEMBRANE.
 2. LEVELING COURSE/CUSHION LAYER SHALL CONSIST OF EXCAVATED ON-SITE OVERBURDEN WITH ORGANIC MATERIAL WASTED. ACCEPTABLE MATERIAL CLASSIFICATION SHALL BE SM, ML, CL, ML-CL. MAXIMUM PARTICLE SIZE SHALL BE 3/8-INCH.
 3. DRAIN LAYER SHALL BE A 1/2-INCH MINUS GRANULAR MATERIAL WITH LESS THAN 2% PASSING THE #200 SEIVE.
 4. COVER MATERIAL SHALL BE 3/8-INCH MINUS MATERIAL AND SHALL CONSIST OF EXCAVATED ON-SITE OVERBURDEN WITH ORGANIC MATERIAL WASTED.

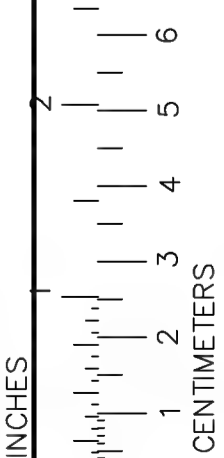


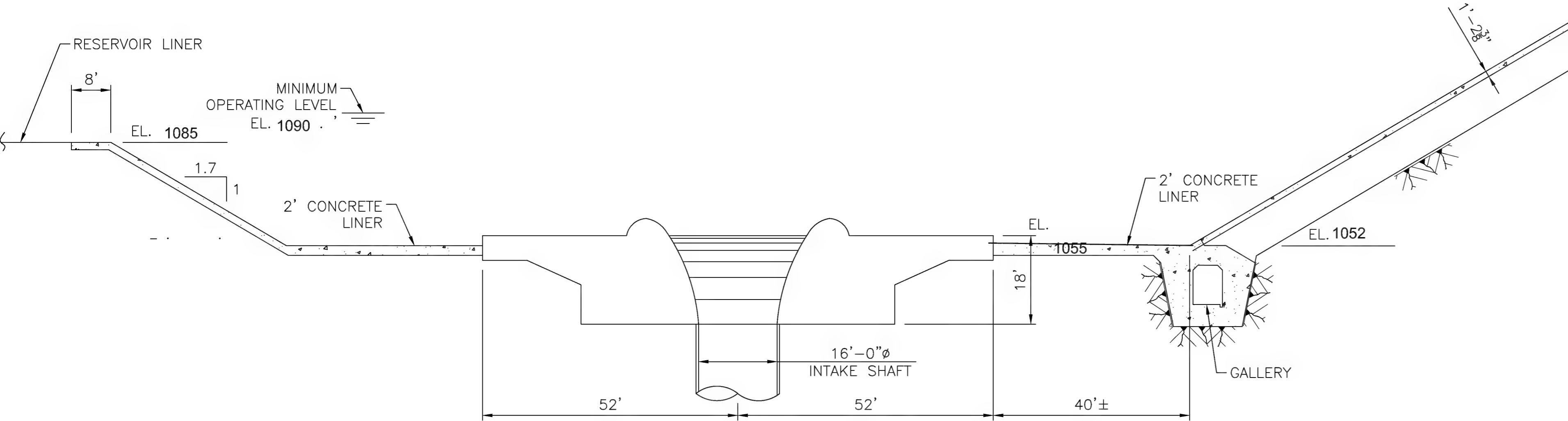
UPPER RESERVOIR GALLERY TYPICAL SECTION
SCALE: 1" = 4'



UPPER RESERVOIR
SECTION & DETAILS

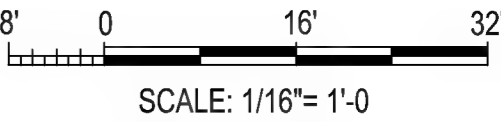
FIGURE 3-7





ELEVATION VIEW AT UPPER RESERVOIR INTAKE STRUCTURE
SCALE: 1/16"= 1'-0"

Figure 3-8
Intake Structure



SECTION 4.32(A) INFORMATION

1. *Identification of persons, associations, domestic corporations, municipalities, or states that have or intend to obtain and will maintain any proprietary right necessary to construct, operate, or maintain the project:*

The Applicant intends to obtain and maintain the proprietary right necessary to construct, operate and maintain the Bigstone Pumped Storage Project. Any additional lands on adjoining parcels adjacent to the Project property, as yet undetermined, necessary to construct, operate and maintain the Project would be acquired by lease, purchase, or appropriation.

2. *Identify*

- i. *Every county in which any part of the project, and any Federal facilities that would be used by the project, would be located:*

County: Grant County
Address: 210 East 5th St.
Milbank, SD 5725

- ii. *Every city, town, or similar local political subdivision:*

- A. *In which any part of the project, and any Federal facilities that would be used by the project, would be located:*

None

- B. *That has a population of 5,000 or more people and is located within 15 miles of the project dam:*

There is no existing dam associated with the Project. There are no political subdivisions have populations greater than 5,000 people according to 2018 U.S. Census Data and are within 15 miles of any part of the Project:

- iii. *Every irrigation, drainage, or special purpose subdivision of interest:*

- A. *In which any part of the project, and any Federal facilities that would be used by the project, would be located:*

None

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- B. That owns, operates, maintains, or uses any project facilities or any Federal facilities that would likely be interested in, or affected by, the application:

None

- iv. Every other political subdivision in the general area of the project where there is a reason to believe they would likely be interested in, or affected by, the application:

None

- v. All Indian tribes that may be affected by the project:

Cheyenne River Sioux Tribe
PO Box 590
Eagle Butte, SD 57625

Ponca Tribal Headquarters
PO Box 288
Niobrara, NE 68760

Crow Creek Sioux Tribe
PO Box 50
Ft. Thompson, SD 57339

Rosebud Sioux Tribe,
11 Legion Ave
Rosebud, SD 57570

Flandreau Santee Sioux Tribe
PO Box 283
Flandreau, SD 57028

Santee Sioux Tribe of Nebraska
425 Frazier Ave N. Suite 2
Niobrara, NE 68760

Lower Brule Sioux Tribe
187 Oyate Circle
Lower Brule, SD 57548

Standing Rock Sioux Tribe
P.O. Box D
Fort Yates, ND 58538

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Oglala Sioux Tribe
P.O. Box 2070
Pine Ridge South, Dakota 57770

Omaha Tribe of Nebraska
PO Box 368
Macy, NE 68039

Winnebago Tribe
PO Box 687
Winnebago, NE 68071

Yankton Sioux Tribe
PO Box 1153
Wagner, SD 57380

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